

SKYNEWS



Lunar Eclipse

Bill Weir

August 28 2007 - Metchosin, BC, Canada

Don't forget this Month's Lunar Eclipse on the 20th !

IN THIS ISSUE

Cover Photo
Guest Speaker
Presidents Message
Messier Observing Program
Voyager 1

NEXT MEETING

Wednesday
January 12th, 2011

Surprise Guest
TBA

www.victoria.rasc.ca

Cover Astrophotography

by Bill Weir

August 28 2007 - Metchosin, BC, Canada

I observed the whole event from beside the riding ring, out here in Metchosin. I was listening to late night talk radio from San Francisco and people kept phoning in their reports of observing the eclipse. It was almost like I wasn't observing alone. The same thing went on a couple of weeks ago during the Perseids. Only on that occasion the calls might be punctuated by oohs and wows as a particularly good one went by.

Guest Speaker: Dr. Andrew Woodsworth



December 8, 2010 - [ALMA](#)

A Billion Dollar Radio Observatory in the Chilean Andes - Dr. Andy Woodsworth



Canada is a participant in the development of this international radio observatory, which will represent a bigger advance in the field of radio astronomy than Hubble did in optical astronomy. This enormous observatory, which includes 66 large movable antennas in a 15 km area, is being built at the 5,000 metre level in the Atacama desert region of

northern Chile. This talk will compare optical and radio astronomy, and explain some of the excitement behind the scientific potential and the very challenging technology development required to realize this potential. The talk will also show a few of the touristic aspects of the Atacama region.

Bio: Andy Woodsworth holds a PhD in radio astronomy from Queen's University. He spent many years with NRC's Herzberg Institute of Astrophysics in Ottawa and in Victoria, and he later led NRC's Institute for Information Technology and served as an interim Vice-President of NRC. While in Ottawa, he was Secretary of the RASC Ottawa Centre and its representative to National Council.

Currently, Andy is the Chairman of the Board of Compute Canada and a Vice-President of Leadership Victoria. He also is a member of the ALMA Annual External Review committee and he has recently returned from visiting the ALMA site. [Galaxy Consulting](#)

Presidents Message



Do you remember when, for you, that first burst of interest in astronomy took hold?

Maybe it was when you were little and your parents took you camping on crystal clear summer nights. Maybe it was later on when you finally had time to do some of that science reading you always

wanted to get to or when you looked through a telescope for the first time. For every one of us in the RASC it was something different but once you had it, it didn't let go.

For me, it was the astronomical event that took place in 1986, the return of Halley's Comet, which was the trigger. My son was still tiny and I remember walking with him in my arms looking out at the sky in the middle of the night and thinking... "How in the heck did Edmund Halley know that this comet was going to come back every 76 years? How DID scientists figure out that other comets wouldn't be seen for at least another 10 000 years?" And that was that. From that time on I started reading about early astronomers, watched Nova programs on TV, and dove headlong into beginning texts on astronomy. But I know that I was not particularly interested in actually going out and finding people with telescopes and braving cold Ottawa nights. In fact, I don't think, at this point, I even knew that the RASC existed. Just to read, to be an "armchair astronomer", was quite enough for me.

Jump forward about 7 years and my family had moved to Victoria. Once I was comfortable in a new teaching job, a new house and family responsibilities I realized that the Astronomy interest was still there and I went in search of what I could do. Within a very short time I met two incredible people that paved the way to today.

The first was Jack Newton, the well-respected astrophotographer and still a member of our Victoria group. I went to the Eaton's Shopping Centre and asked at the Black's Photography store if any one knew of a group of amateur astronomers in the city or who I could contact. The person there directed me to Jack Newton, who was, at that time, the manager of the Mark's and Spencer's store in the shopping centre. I remember going right up to him in the store and asking about an astronomy group. It did seem a bit strange but, nevertheless, he was very gracious

and directed me immediately to the RASC meeting the next week at UVIC. He gave me the date, the room number and welcomed me along. And so I went to my first meeting...very shy, quite intimidated by all those smart people, but fascinated by the woman speaker from UVIC. I was officially hooked.

The second person is also well known to you: Sandy Barta. After going to a few of the meetings in the spring I went up to the Hill on a summery, warm Saturday evening. Not knowing really what to do, I followed other people and got into a line-up at one of the telescopes. When it was my turn there was this woman, funny, cheery, and very comfortable and patient, telling me how to see through the eye- piece. I saw the Ring Nebula for the first time. I asked her about her telescope. I asked her how she knew where to find the Nebula. I asked her when they were going to be there again. By that time she had to shoo me away from the telescope so others could look, but I didn't need too much more than that as a newcomer...the introduction to knowledgeable and accommodating people, a great program of astronomy presentations and free views through some telescopes.

Jump a few more years and now, here I am, taking on the responsibility of the presidency of this terrific organization. I am looking forward to working with people on council and have some goals in mind to work toward. I want to ensure our continuation of our excellent work with public outreach and the school programs, and to widen the observing and astrophotography net to include live and taped video programming. I want our Light Pollution Abatement initiatives to culminate in an Urban Star Park or a Dark Sky Preserve within the next two years.

But mostly I would like to have people in our community of Greater Victoria and beyond have the opportunity to also have that "trigger" moment when they decide that they want to learn more about astronomy. That may happen at a school evening star party, a public event such as the lunar eclipse coming up in December, or a community festival. No one knows when the moment will strike but, when it does, I hope that, as members of the RASC, we will all be there, as cheerful, as knowledgeable, and as welcoming as they were for me when I first came to Victoria.

Our members are the roots of what we are as a group, both locally and nationally. We need to keep the membership strong, keep it lively, and keep it

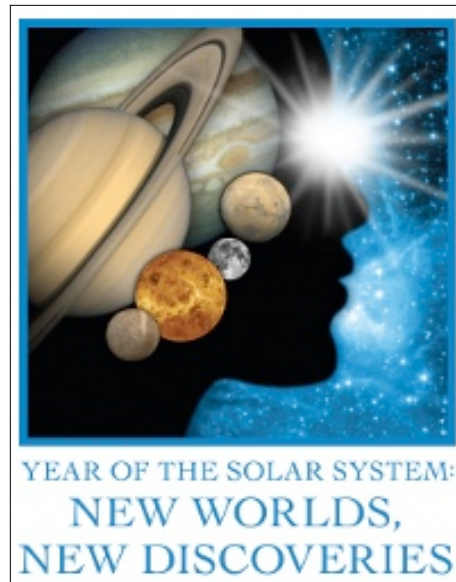
growing. I would like to make the growth and maintenance of our membership a real priority over the next two years, as well.

I would like to say thank you to a few members of council who are stepping down this year: Dave Bennett, Sandy Barta, Colin Scarfe, Scott Mair and Steve Pacholuk. Their hard work, interests and contributions over the last few years have been very much appreciated by everyone.

Let's hope for clear skies this coming Christmas season and that we will be able to get out under the stars wherever you may be. Stay warm. Keep observing. Keep your own interest in astronomy going and then

pass it on!

Lauri Roche



NASA is celebrating the Year of the Solar System in 2011! Spanning a Martian year (23 months), numerous missions will encounter their targets—the Moon and Mars, Mercury and Jupiter, and even comets and asteroids! It's an unprecedented time in planetary sciences as we learn about new worlds and make new discoveries!

Join the exploration at <http://solarsystem.nasa.gov/yss/>

Voyager 1, Prepare for Action

At the outer limits of our solar system, a solar shock wave is about to overtake NASA's Voyager 1 spacecraft.

July 13, 2004: When Voyager 1 signals NASA, which it does almost every day, there's usually not much to report. The spacecraft is nearly 9 billion miles (14.5 billion km) from the sun, at the edge of our solar system. It's quiet out there, dark and uneventful.

Voyager 1, prepare for action.



An artist's concept of Voyager 1

A solar blast wave is heading for the spacecraft, and "it could arrive at any moment," says Ed Stone, project scientist for the Voyager mission at the Jet Propulsion Laboratory.

Remember the solar storms of October and November 2003? Giant sunspots unleashed some of the most powerful flares in recorded history; the explosions hurled billion-ton clouds of gas, called coronal mass ejections (CMEs), into the solar system. When the CMEs reached Earth, auroras appeared as far south as Florida, and our planet gained a new radiation belt that persisted for weeks.

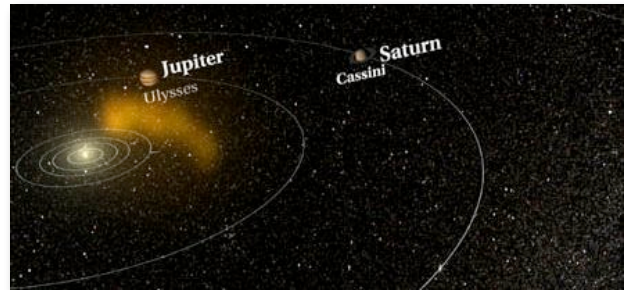
Other spacecraft have already been hit.

On Oct. 28, 2003, a CME swept past Mars Odyssey, in Mars orbit. Intense radiation disabled one of the craft's science instruments, the Martian Radiation Environment Experiment (MARIE), designed, ironically, to study solar storms and space radiation. In the weeks that followed, CMEs buffeted Ulysses near Jupiter, and Cassini on its way to Saturn. Neither spaceship was harmed.

When one of the CMEs reached Saturn, Cassini detected bursty radio emissions signaling a magnetic storm around the ringed planet. Saturn (like Earth and Jupiter) has a global magnetic field that wraps around the planet, enveloping it in a protective bubble called the magnetosphere. When a CME hits, the magnetosphere reverberates ("a magnetic storm"); auroras appear; plasmas inside the magnetosphere begin to emit radio waves but the planet itself is safe.

"The blast wave was powerful enough to spark a magnetic storm all the way out at Saturn, almost ten times farther from the sun than Earth. That's impressive," marvels Stone.

October. November. December. "The CMEs kept traveling outward," says Stone. January. February. March. "Some of the CMEs merged, the faster clouds having scooped up the slower ones." April. "The shock wave hit Voyager 2."



Concept of the blast wave traveling outward through the solar system.

Voyager 1 and 2 are the most distant spacecraft in the solar system. They left Earth in the late 1970's, visited Jupiter and Saturn (Voyager 2 also went to Uranus and Neptune), then headed for the stars. Voyager 2 is now 7 billion miles from Earth, and Voyager 1 is almost 9 billion miles away.

Soon these spacecraft will reach the edge of the sun's magnetosphere, or "heliosphere," a vast magnetic bubble containing all nine planets. Outside the bubble lies interstellar space. Inside ... the Voyagers are still within range of solar storms.

The shock wave hit Voyager 2 traveling 600 km/s, or 1.3 million mph. (For comparison, CMEs left the sun last October going 1500 to 2000 km/s, "so there has been substantial deceleration," notes Stone.) The physical force was slight, less than the touch of a feather--the spacecraft didn't go tumbling. Neither did radiation cause problems. The storm had diffused over such a great volume by the time it reached Voyager 2, that "no damage was done," says Stone.

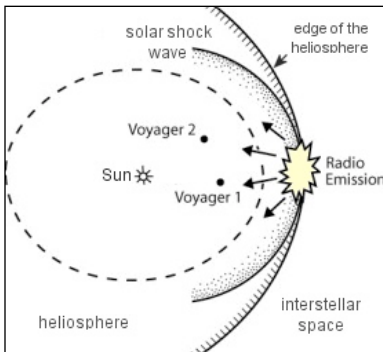
In fact, the encounter was good. Voyager 2 measured (indirectly) the speed of the shock, as well as its composition, temperature and magnetism. These data are invaluable, says Stone.

Combined with measurements from Mars Odyssey, Ulysses, Cassini and other spacecraft, they show how far-ranging CMEs evolve and dissipate. One day human astronauts will be "out there," and mission planners need to know what to expect.

All that remains is Voyager 1.

Based on the velocity of the blast wave when it hit Voyager 2, "we expected the shock to reach Voyager 1 on June 26th," says Stone. "We're still waiting." It's possible the wave, irregular in structure, will simply miss Voyager 1.

But it won't miss the edge of the heliosphere--it can't. When the shock wave gets there, Stone says, there might be a 2 to 3 kHz radio burst signaling the impact, akin to the radio emissions Cassini detected when the wave hit Saturn's magnetic field, but at much lower frequencies. Voyager 1 has a receiver on board that can record such bursts and report them to Earth.



A schematic diagram of the the solar blast wave hitting the edge of the heliosphere. [Click to listen](#) to sample radio sounds generated by the collision.

That's not all: the blast wave will push the edge of the heliosphere outward as much as 600 million km, Stone believes, and then there will be a rebound. For months the outer layer of the sun's magnetic bubble might slowly sweep back and forth over Voyager 1.

For Stone and his colleagues, who've have been waiting decades for Voyager 1 to reach the outer limits of the solar system, this is an exciting time. Solar shock waves. Radio bursts. The heliosphere itself bulging and rebounding.

It's not so uneventful out there, after all.

Announcing the Messier Observers Assistance Plan

by Nelson Walker

What is it?

We will help you observe the Messier Objects. We will help you earn the RASC certificate and pin (in the total history of Victoria Centre, less than ten observers have earned this certificate).

How does it work?

Experienced observers will organize and attend regularly scheduled observing sessions devoted to observing the Messiers. Support will be provided while observing and on our website: finder charts and the best sequence of objects to be seen, plus equipment suggestions.

When does it start, and how long will it last?

The program will start next year (2011) with the new moon cycle the last week of January – first week of February. Of course, the exact dates and numbers of sessions will depend on the weather, but at least one session per month is the plan. The program will continue so long as there is enough interest. Join any time and attend as many sessions as you are able.

How long will it take to complete the Messiers?

To win the certificate, all 110 Messier objects must be found through one's own efforts, seen, and logged. Assuming fifteen objects can be found during a good session devoted solely to Messier hunting, eight sessions should do the trick.

Where will the observing sessions be held?

There are three good Messier locations in the Victoria area: the VCO, Cattle Point, and the Metchosin Municipal Field. Unfortunately, no one place is ideal for all of the objects. We will select from among the three to optimize our chances of seeing the objects. Remember, you must be an Active Observer to observe at the VCO.

What do you have to do?

First, make sure you are on the Active Observer's list. Then watch our website for information about

resources, including telescopes that will be available for your use.

Remember!

This is a new program, and, as such is a “work in progress.” Comments and suggestions are welcome. Address them to Nelson Walker at nelwalk@aol.com.

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ASTRONOMY CAFE (EACH MONDAY)



Fairfield Community Centre

1330 Fairfield Rd. Victoria,
7:30pm - 11pm

Call Geoff at (250) 592-2264 for directions and information.

New comers are especially encouraged.



New Observers Group

Hosted by Sid Sidhu
1642 Davies Road, Highlands. Call
250.391-0540 for information and directions.



Email Lists

Observer / CU Volunteers / Members

Contact Joe Carr to subscribe
webmaster@victoria.rasc.ca

January 2011 Meeting
Wednesday 12th - 7:30pm - Room 060 Uvic Elliott Building

RASC Victoria Council for 2010 / 2011		
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